

PREVALENCE AND DETERMINANTS OF DEPRESSION IN ADULT WOMEN OF KANPUR

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ABSTRACT

INTRODUCTION

The World Health Organization (WHO) Global burden of disease study estimates that mental and addictive disorders are among the most burdensome in the world, and their burden will increase over the next few decades. The mental and behavioral disorders account for about 12% of the global burden of diseases. By 2020 it is likely to increase to 15%. In developing countries, which contain 4/5th of the world's population, non-communicable diseases like psychiatric disorders are quickly replacing infectious diseases and are becoming the major cause of disability and early deaths.

AIM AND OBJECTIVES

- *To study the prevalence of depression in the adult women*
- *To identify the determinants of depression in the study subjects*

MATERIAL AND METHODS

A cross-sectional study was conducted at the rural area served by the Rural Health Training Centre (R. H. T. C.) Kalyanpur, Kanpur which includes the 4 areas (Bairi-1, Bairi-2, Kheda, Naubasta). Duration of the study was from July 2016 to June 2017. women of 20-60 years of age were included in the study. The survey was started from Bairi-1 area and was carried out to other selected areas, till the optimum sample size 695 was achieved. Data were recorded on a predesigned and pretested questionnaire covering all objectives of the study.

RESULTS

Of the 695 subjects studied, 73 (10.5%) were found to be suffering from Major Depressive Disorder/Depressive episode. 34.24%, 12.32%, and 6.84% had mild, moderate, severe depression respectively. Majority of the depressive subjects belongs to age group 50-60 years. Muslims, married and unemployed women were more prone to depression. Depression decreases with increase in educational level. Most of the depressive subjects belong to lower socioeconomic status and had a family history. women with comorbid conditions (diabetes and hypertension) more prone to depression.

KEYWORDS: *Depression, Mini International Neuropsychiatric Interview, Hamilton Depression Rating Scale & Comorbid Condition*

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INTRODUCTION

The World Health Organization (WHO) Global burden of disease study estimates that mental and addictive disorders are among the most burdensome in the world, and their burden will increase over the next few decades. The mental and behavioral disorders account for about 12% of the global burden of diseases. By 2020 it is likely to increase to 15%.¹ In developing countries, which contain 4/5th of the world's population, non-communicable diseases like psychiatric disorders are quickly replacing infectious diseases and are becoming the major cause of disability and early deaths. This transition will cause many difficulties for the health systems in these countries.

The WHO in 2001 declared that nearly forty-five million people suffer from psychiatric disorders worldwide. At least one in four people experience psychiatric problems during their lifetime. Around 33% of the years lived with disability (YLD) are due to neuropsychiatric disorders, a further 2.1% to intentional injuries. Unipolar depressive disorders alone lead to 12.15% of the years lived with disability, and rank as the third leading contributor to the global burden of diseases. Four of the six leading causes of years lived with disability are due to neuropsychiatric disorders (depression, alcohol-use disorders, schizophrenia and bipolar disorder).² By 2030, the burden of major depression is said to surpass that of ischaemic heart disease and will be ranked second in the world.³ Depression was reported to be higher in females, in the age-group of 40-49 years and among those residing in urban metros.⁴

According to WHO, the burden of psychiatric morbidity especially depression is 50% higher among females as compared to males and Indians are reported to be among the world's most depressed. The importance of gender differences in mental health is most graphically illustrated in the significantly different rates of major depression experienced by women compared with men. A recent review found that women predominated over men in lifetime prevalence rates of major depression in all the general population studies conducted so far.⁵

Symptoms of depression, anxiety, and unspecified psychological distress are 2–3 times more common among women as compared to men. Females are more predisposed to mental disorders due to rapid social change, gender discrimination, social exclusion, gender disadvantage like marrying at a young age, concern about the husband's substance misuse habits, and domestic violence.⁶

Socio-demographic changes, epidemiological transition, media revolution and changing lifestyles have brought new challenges of man-made lifestyle related problems. The social, biological and psychological strengths of the past are slowly being replaced by a fragile new lifestyle of people, making them more vulnerable to social, mental and psychological problems than before.

Thus, there was a need to carry out this study to estimate the prevalence of depressive disorders among adult women and also to assess the determinants leading to depression in the community. Since such a study has not been conducted in the recent past in Kanpur, the topic itself gains paramount importance. Hence the present study entitled **“PREVALENCE AND DETERMINANTS OF DEPRESSION IN ADULT WOMEN OF KANPUR ”** was conducted.

AIM AND OBJECTIVES

The study was conducted with following objectives

- To study the prevalence of depression in the adult women.
- To identify the determinants of depression in the study subjects.

MATERIAL AND METHODS

A cross-sectional study was conducted at the rural area served by the Rural Health Training Centre (R.H.T.C.) Kalyanpur, Kanpur which includes the 4 areas (Bairi-1, Bairi-2, Kheda, Naubasta). Duration of the study was from July 2016 to June 2017. Women of 20-60 years of age were included in the study. To calculate the minimum sample size a pilot study was done in R.H.T.C. served areas of District Kanpur Nagar on 100 study subjects, as no recent study on the prevalence of depression in adult women in Kanpur was available at the local level. On the basis of the pilot study, a prevalence of depression was found to be 20.5%. The minimum sample size was 695.

$$\begin{aligned}\text{Minimum Sample size (n)} &= Z^2 PQ/d^2 \\ &= 695.\end{aligned}$$

List of all the houses located in the selected areas was made available in R.H.T.C., Kalyanpur and systematic random sampling was used to select 695 subjects. The survey was started from Bairi-1 area and was carried out to other selected areas, till the optimum sample size 695 was achieved. Data were recorded on a predesigned and pretested questionnaire covering all objectives of the study. Direct personal interview method was applied to record the data. Written informed consent was taken from all the participants. All the study subjects were assessed for depression using Mini International Neuropsychiatric Interview scale (MINI) which is a short structured diagnostic interview used by psychiatrists and clinicians and further classified into mild, moderate and severe depression by using Hamilton Depression Rating Scale (HAM-D) is the most widely used clinician-administered depression assessment scale. Data was compiled and analyzed by SPSS version 20. Categorical variables were analyzed by using percentages and chi-square test. p-value <0.05 was considered significant.

RESULTS

Of the 695 subjects studied, 73 (10.5%) were found to be suffering from Major Depressive Disorder/Depressive episode based on Mini International Neuropsychiatric Interview scale. 34.24%, 12.32%, and 6.84% had mild, moderate, severe depression respectively and Only 1.36% study subjects were suffering from very severe depression based on Hamilton Depression Rating Scale. (TABLE 1). 33.33% of the study subjects with depression belonged to the age group 50-60 years. There was a statistically significant association between the increase in age and depression. 57.44% of subjects with depression were Muslims. Muslims were more prone to depression and this observation was found to be statistically significant (p<0.05). 44.68% subjects with depression were married. And 16.31% subjects with depression were unmarried. Married women were more prone to depression and this association was found to be statistically significant.

Among the subjects with depression, around 30.49% were illiterate and only 2.8% were educated up to graduation. Depression decreases with increase in educational level and this observation was found to be statistically significant. 39.71% subjects with depression were unemployed and 2.83% study subjects were Professional.

Unemployed were more prone to depression. Among the study subjects with depression, 29.78% belonged to social class III and 8.51% were in the social class I. Presence of depression was more in lower middle-class subjects and this association was found to be statistically insignificant. 74.46% had a family history of depression while 25.53% did not have any family history, the association between presence of family history and depression was found to be statistically significant. (TABLE 2) 19.85% subjects with depression suffered from physical/mental harassment. only 2.83% had a suspicious husband. Association between the history of psychosocial problem and depression was found to be statistically significant. Among the study subjects with depression, majority 23.40% suffered from diabetes mellitus and 4.25% had Chronic Obstructive Pulmonary disease/Asthma. This association between chronic illness and depression were found to be statistically significant. (TABLE 3)

Table 1: Severity of Depression among Subjects with Major Depressive Disorders/Depressive Episodes

*Severity of Depression	No.	%
Normal(0-7)	33	45.20
Mild(8-13)	25	34.24
Moderate(14-18)	09	12.32
Severe(19-22)	05	6.84
Very severe(≥ 23)	01	1.36
Total	73	100

* HAM-D: Hamilton Depression Rating Scale

Table 2: Association of Depression with Biosocial Profile

Age(in Years)	Depression (%)	
	Present	Absent
20-30	11.34	19.31
30-40	24.82	27.43
40-50	30.49	31.22
50- ≤ 60	33.33	22.02
P value<0.05		
Religion	Depression (%)	
	Present	Absent
Hindu	41.84	60.10
Muslim	57.44	39.35
Others (Sikh/Christian/Jain/Buddhist)	0.7	1.2
P value<0.05		
Marital Status	Depression (%)	
	Present	Absent
Unmarried	16.31	21.66
Married	44.68	77.79
Divorced/separated/Widowed	39.00	0.54
P value<0.05		
Educational Status	Depression (%)	
	Present	Absent
Illiterate	30.49	35.37
Primary	21.98	6.13
Middle	12.76	8.84
High School	12.05	29.24
Intermediate	13.47	9.92
Graduate	2.8	9.20
Professional, P. G and above	6.38	1.26
P value<0.05		

Table 2: Contd.,			
Occupational Status		Depression (%)	
		Present	Absent
Unemployed		39.71	31.22
Unskilled Worker		12.05	15.88
Semiskilled Worker		8.51	7.58
Skilled Worker		13.47	10.28
Clerical/Shop-owner/Farm worker		14.18	26.53
Semi professional		5.67	7.22
Professional		2.83	2.16
P value<0.05			
*Socio-Economic Status		Depression (%)	
		Present	Absent
I		8.51	4.15
II		16.31	16.42
III		29.78	29.42
IV		27.65	28.51
V		17.73	21.48
P value>0.05			
Family History of Psychiatric Illness		Depression (%)	
		Present	Absent
Present	74.46	10.46	
Absent	25.53	89.53	
Total	100	100	
P value<0.05			

Table 3: Determinants of Depression among Study Subjects

Psychosocial Problems	Depression (%)		P Value
	Present	Absent	
Physical/Mental harassment	19.85	25.09	<0.05
Sexual harassment	3.54	12.52	<0.05
Illegitimate relationship of husband	0	0.36	<0.05
Suspicious husband	2.83	2.34	>0.05
Job dissatisfaction	13.47	1.80	<0.05
Social disharmony	14.89	4.33	<0.05
None	45.39	63.53	<0.05
Chronic Illness	Depression (%)		Pvalue
	Present	Absent	
Diabetes mellitus	23.40	18.23	<0.05
Hypertension	17.73	11.19	<0.05
Visual impairment	7.8	10.10	<0.05
Hearing impairment	9.21	10.10	<0.05
Osteoarthritis	13.47	16.06	<0.05
Chronic kidney disease	4.96	6.85	>0.05
COPD/Asthma	4.25	5.05	<0.05
Thyroid disorder	2.83	4.33	>0.05
No chronic disease	16.31	48.01	<0.05

DISCUSSIONS

The present study revealed that the Major depressive disorder present in 10.50% study subjects. This is similar to the findings of **Rao T. S. Sathayanarayan et al**²⁰ reported that 24.40% of the subjects were suffering from one or more diagnosable psychiatric disorder of which the prevalence of depression was about 14.82% and of anxiety disorder was 4%.⁴ **Ahmadvand Afshin et al**⁶ observed that overall mental disorder prevalence was 29.2%. The most prevalent disorders were

mood disorders (9.3%) and anxiety disorders (4.7 %). **Barua A. et al⁸** in their study reported an overall prevalence of psychiatric disorder to be 40%, of these the majority were suffering from somatoform disorder (35.1%) while 33.8% were suffering from Major Depression. **Math Suresh Bada et al¹⁵** observed that the prevalence of psychiatric disorder varied from 0.95% to 36% in the Indian population. **Bagalman Erin et al⁹** also observed that the 26.2% of adults were suffering from mental disorder.

The present study shows that majority of the study subjects SUFFERING belonged to 40-50 years age group (31.07%) followed by 30-40 yrs age group (26.90%). Almost the same trend was observed in the study of **Ahmadvand Afshin et al⁶** in which majority 27.6% of the participants were in 48-57 years age group followed by 26.5% who were in 38-47 years. **Thapa DK et al** found that the mean age for psychiatric morbidity was 39.62 ± 12.85 years. **John Shiny et al** reported that majority of patients were in the range of 46-60 years followed by patients below 45 years. The present study shows that the prevalence of depression was high in the age group 50-≤60 years (33.33%) followed by 40-50 years (30.49%) and 30-40 years (24.82%). This is in concordance with the findings of **Premaranjan K. C. et al¹⁹** observed that highest rate of psychiatric morbidity was found in the 41-50 years (24.2%) and the lowest rate in the 13-20 years (3.8%). The similar trend was also seen in the study by **Barua A. et al⁸** who reported that proportion of psychiatric disorders was high in the age group of ≥50 years (66.7%). **Ahmadvand Afshin et al⁶** observed that the most frequent occurrence of mental disorders was in the age group 46-57 yrs (27.6%).

In the present study it was observed that the depression was high among Muslims (57.44%) followed by Hindus 41.84% and only 0.70% belonged to other religion which was similar to the study conducted by **Barua A. et al⁸** who reported that the proportion of psychiatric morbidity was highest among the Muslim (50%) followed by Hindus (42.4%). Muslim WOMEN were with more psychiatric morbidity due to the more prevalence of illiteracy, domestic violence AND economic dependence on males

It was observed in our study that depression was more prevalent among married (44.68%) followed by those who were either divorced or separated or widowed (31.91%) and 23.40% were unmarried. This is in concordance with the findings of **Deswal Balbir S. et al¹⁰** observed that the lifetime and 12-month prevalence rates of any mental disorder among the urban adult population aged >18 years were the highest among the married group (4.04%) and the least among the never married (0.33%). **Rao T. S. Sathayanarayan et al²⁰** observed that the married population (33.3%) had almost a three-fold higher prevalence of psychiatric disorders in comparison to the unmarried (13%). **Yousefzadeh et al** showed that the highest prevalence of psychiatric morbidity was among married individuals (45.6%) **Ahmadvand. Afshin et al⁶** also reported that psychiatric disorders were most prevalent among widows (35.8%), while unmarried had the smallest prevalence (19.3%). **Barua A. et al⁸** reported that prevalence of psychiatric disorders was high among the unmarried, widowed or divorced individuals (61.1%) as compared to their married counterparts (31.7%).

In our study it was observed that the depression was high among the women who were illiterate (30.49%), followed by the females who were educated up to primary class (21.98%), followed by those who were educated up to intermediate (13.47%) and was least among the graduates (2.8%) this is in concordance with the findings of **Reddy M. Venkataswamy et al²¹** found that the highest morbidity was found among those who had up to primary school education (70.6%) and decreased with increase in educational level (29.9%). **Barua A. et al (1999)** reported in their study on psychiatric morbidity among the adult population in Karnataka that the prevalence of psychiatric disorders was significantly higher among illiterates (63.8%). **Deswal Balbir S. et al¹⁰** observed that the lifetime prevalence rate of mental

disorders was found to be higher among those with 0–5 years of education(21%) as compared to more educated subjects(11%). **Ahmadvand Afshin et al⁶** also reported that the study subjects with an elementary education(30.8%) had the maximum prevalence of psychiatric disorders as compared to those who had diploma degree(18.6%). **Rao T. S. Sathayanarayan et al²⁰** also observed that illiterates(41.1%) had a higher prevalence of psychiatric disorders compared to those who were educated(9.9%).

In our study it was observed that depression was high among unemployed(39.71%)females followed by clerical/shop owner/farm worker(14.18%), skilled worker(13.47%) and it was least among the professional females (2.83%)**Barua A. et al⁸** observed that the proportion of unemployed or housewives affected with psychiatric disorders was 68.4%. **Ahmadvand Afshin et al⁶**observed that the unemployed had a higher prevalence of psychiatric disorders (38.8%) as compared to unemployed. **Rao T. S. Sathayanarayan et al²⁰** reported that the unemployed(53.3%) and daily wage workers(40.3%) had the highest prevalence of psychiatric disorders compared to those who had a salaried occupation or were in business(14.4%). **Yousefzadeh et al** showed that there was a higher prevalence of mental disorders in housewives compared to other groups. **Maideen Siti Fatimah Kader et al(2015)** observed that those who were unemployed (8.6%)had a higher prevalence of anxiety than those who were employed.

Majority of females in our study who had depression belonged to social class III (29.78%) followed by social class IV (27.65%), social class V(17.73%)and 8.51% were from social class I. This is in concordance with the findings of **Shah Anil V. et al²³** who in their study reported that 75% of women with psychiatric disorders belonged to the lower class, 44% belonged to upper middle-class families and 18% belonged to middle class. **Barua A. et al⁸** has reported that psychiatric disorders were significantly high among individuals belonging to low socioeconomic status (67.4%)

In the present study, women with depression, majority associated with no psychosocial problems (45.39%) followed by physical/mental harassment (19.85%), social disharmony (14.89%) and 2.83% had suspicious husband which was in concordance with **Prabhu Sudhir et al²⁸**in which mental disorder was present in 45.39% subjects with physical/mental harassment,19.89% with social disharmony,14.89% with mental harassment and 2.83% subjects with suspicious husband. In our study, depression was maximum among the diabetes mellitus (23.40%) followed by hypertension (17.73%), osteoarthritis(13.47%), no chronic disease(16.31%) and 2.83% had a thyroid disorder. This was similar to the findings of **Ghanem M. et al²⁹**who reported that majority of subjects who suffered from mental disorders had cancer(41.2%) followed by heart disease(38.2%), kidney disease(37.4%)hypertension(28.5%), liver disease(23.7%) and diabetes mellitus(23.3%). **Thapa P³⁰**also observed that Depression was found in 14 (28.0%) of cancer patients. **Rao T. S. Sathayanarayan et al²⁰**observed that among subjects with psychiatric morbidity 68.40% had COPD followed by 63.20% with hypertension and 60% with Diabetes. **Thapa DK et al²⁵**reported that majority of subjects with thyroid disorder had neurotic, stress-related, and somatoform disorder(48.3%) followed by mood disorder(26.7%). 68.40%. **JohnShiny et al²⁶**found that Depressive symptoms were noticed in 85.4% of heart patients whereas anxiety symptoms were present in 50.8%. **Maideen Siti Fatimah Kader et al³¹**reported that 13 % of the participants with chronic diseases had anxiety. Stroke, arthritis, and cancer were the only chronic diseases that were associated with anxiety. **Rehman Atiq Ur et al³²**observed that 47.9%, 69.6% and 62.9% patients with type-2 diabetes were suffering from depression, anxiety, and stress respectively. **Kobah Edith et al³³**reported that the prevalence of lifetime mental disorders was more common in subjects who had some coexisting medical condition (64.8%). **Iteke Obiora et al³⁴**found that among the stroke patients majority had a generalized anxiety disorder (4.4%), 31.1% had depression, 2.2% had social phobia and 62.2% had no

psychiatric morbidity.

CONCLUSIONS

In our study, Majority of the depressive subjects belongs to age group 50-60 years. Muslims, married and unemployed women were more prone to depression. Depression decreases with increase in educational level. Most of the depressive subjects belong to lower socioeconomic status and had a family history. A women with comorbid conditions (diabetes and hypertension) more prone to depression.

RECOMMENDATIONS

The present study has revealed that there was a higher prevalence of depression among adult women therefore, there is need to provide mental health services at grass root level and to integrate them with general health services. There should be some basic training programme for creating awareness in primary physicians and health workers regarding depression so that mental health services could be implemented effectively at grass root level. There is a significant association between depression with chronic diseases (such as diabetes mellitus, hypertension, heart disease, cancer, chronic kidney disease etc.) in our study, therefore there is definite need of integration of National Mental Health Programme with National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular disease and Stroke. There is an association of depression with marital disharmony and domestic violence, therefore there is need of Counselling by the clinical psychologist and counselors for management of cases of marital discord and domestic violence.

REFERENCES

1. WHO World Health Report, 2001
2. WHO's Global Burden of Disease 2001
3. Mathers et al WHO 2005
4. National Mental Health Survey of India 2015-16.
5. Piccinelli and Homen et al 1997.
6. Ahmadvand Afshin, Sepehrmanesh Zahra: Prevalence of Psychiatric Disorders in the General Population of Kashan, Iran. Archives of Iranian Medicine; Volume 15(4): April, 2012.
7. Ahuja Neeraj : A short textbook of psychiatry. 7th Edition
8. Barua A, Jacob GP: A Study on Screening for Psychiatric Disorders in Adult Population. Indian Journal of Community Medicine; Vol. 1(1): January, 2007.
9. Bagalman Erin, Napili Angela: Prevalence of Mental Illness in the United States: Data Sources and Estimates. Congressional Research Service Report; March 2015.
10. Deswal Balbir S, Pawar A: An Epidemiological Study of Mental Disorders at Pune, Maharashtra. Indian Journal of Community Medicine; Vol 37, Issue 2: April 2012.
11. Goldberg D: General Health Questionnaire. Windsor, NEFR; 1978.
12. Harrison's Principles of Internal Medicine; 18th edition.
13. Kuppuswamy B: Manual of socio economic status (urban), Manasayan, Delhi, 1981.

14. Kwobah Edith, Epstein Steve, Mwangi Ann, Litzelman Debra, AtwoliLukoye: Prevalence of psychiatric morbidity in a community sample in Western Kenya. *BioMedCentral Psychiatry*; Vol.17 (30):2017.
15. Math Suresh Bada: Indian Psychiatric epidemiological studies: Learning from the past. *Indian Journal of Psychiatry*; Vol.52: January 2010.
16. Mini International Neuropsychiatric Interview (MINI): Concordance and causes for discordance with the CIDI. *EurPsychiatry* ; 13:26–34.
17. Park K. Park's Textbook of Preventive and Social Medicine. 24th edition, M/s. Banarsidas Bhanot Publishers. Jabalpur: 640-641, 2017.
18. Prasad BG: Social classification of Indian families. *J Indian Med Assoc*; 37:250-1, 1961.
19. Premarajan K. C., Danabalan M., Chandrasekar R., Srinivasa D. K.: Prevalence of Psychiatry Morbidity in an Urban community of Pondicherry. *Indian Journal of Psychiatry*; 35(2):99-102, 1993.
20. Rao T. S. Sathyanarayana, Darshan M. S., Tandon Abhinav: Suttur study: An epidemiological study of psychiatric disorders in south Indian rural population. *Indian Journal of Psychiatry*; 56(3): Jul-Sep 2014.
21. Reddy M. Venkataswamy, Chandrashekhar C. R.: Prevalence of mental and behavoiural disorders in India: A meta –analysis. *Indian Journal of Psychiatry*; 40 (2): 149-157, 1998.
22. Rehman Atiqur, Kazmi Syeda Farhana: Prevalence and Level of Depression, Anxiety and Stress among Patients with Type-2 Diabetes Mellitus. *International Dibetes Federation*; Vol.11 (2): 81-86, 2005.
23. Shah Anil V., Goswami U. A.: Prevalence of psychiatric disorders in Ahmedabad (An epidemiological Study). *Indian Journal of Psychiatry*; 22(4):384—38, 1980.
24. Shandilya V, Thapar SK, Kaur S: A study on prevalence of psychiatric comorbidity in female patients with breast cancer. *International Journal of Medical and Dental Science*; 4(1): January 2015.
25. Thapa DK, Upadhyaya TL, lamichhane N, Subedi S: The study of Psychiatric Disorders in patients with Thyroid Disorder at the tertiary care centre in Western Region of Nepal. *Journal of Psychiatrists Association of Nepal*; Vol.2, No.2:2013.
26. John Shiny: Prevalence and pattern of psychiatric morbidity and health related quality of life in patients with ischemic heart disease in a tertiary care hospital. *Indian Journal of Psychiatry*; 55(4): Oct-Dec 2013.
27. Yousefzadeh Sh, Pilafkan J, Rouhi-Balasi L, Hosseinpour M, Khodadady N: Prevalence of mental disorders in the general population referring to a medical educational center in Rasht, Iran. *Journal of Human Epidemiology*; 3 (1):2014.
28. Kishore, Billa Raja Rubi. "A Study of Adult Education Learners of Selected Districts of Andhra Pradesh." (2016).
29. Ghanem M., Gadallah M., Meky F. A., Mourad S., Kholy G. El: National Survey of Prevalence of Mental Disorders in Egypt: preliminary survey. *Eastern Mediterranean Health Journal*; Vol. 15, No.1:2009.
30. Thapa P, Rawal N, Bista Y: A study of depression and anxiety in cancer patients. *Nepal Medical College Journal*; Vol.12 (3):171-175, 2010.
31. Maideen Siti Fatimah Kader, Sidik Sherina Mohd: Prevalence, associated factors and predictors of anxiety: a community survey in Selangor, Malaysia. *BioMedCentral Psychiatry*; Vol.15 (262): 2015.
32. Rehman Atiq ur, Kazmi Syeda Farhana: Prevalence and Level of Depression, Anxiety and Stress among Patients with Type-2 Diabetes Mellitus. *International Dibetes Federation*; Vol.11 (2): 81-86, 2005.

33. Kwobah Edith, Epstein Steve, Mwangi Ann, Litzelman Debra, Atwoli Lukoye: Prevalence of psychiatric morbidity in a community sample in Western Kenya. *BioMedCentral Psychiatry*; Vol.17 (30):2017.
34. Iteke Obiora, Ngozichukwu Unaogu, Ikenna Onwuekwe: Post Stroke Psychiatric Co-Morbidity in Adults – A Study from Enugu, South East Nigeria. *EC Neurology*; 3(6): 502-508, 2016